REMARKS

Claims 1, 3, 4, 9-11, 15-17, 21, 23, 24 and 28 have been amended and claims 30-33 have been added to place the application in condition for allowance. No new subject matter has been added to these claims. Accordingly, Applicants submit that no additional search needs to be carried out by the Examiner in order to consider and enter the presently amended claims and new claims. Each of the new claims was derived from a previously included claim or claims.

Original claims 1-29 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ling et al., U.S. Patent No. 6,377,607 ("Ling") in view of Sampath and Kumar VTC Conference 9/1999 ("Sampath article"), Jalloul et al., U.S. Patent No. 6,192,040 ("Jalloul") and Holtzman, U.S. Patent No. 6,393,257 ("Holtzman").

Preliminarily, Applications note that they have submitted a §1.132 Declaration which effectively removes the Sampath article as a prior art reference.

As presently written, the claims of the present invention are directed at an index of a look-up table, or look-up table values, used to retrieve a scale factor where the index or look-up table values are a function of a noise variance of received pilot symbols ("first" noise

variance) or a function of the first noise variance and a noise variance of received data symbols.

Neither Ling, taken separately or in combination with any of the remaining references discloses or suggests the use of an index or look-up table values used to determine a scale factor based on the noise variance of pilot symbols or based on the noise variance of pilot symbols and the noise variance of data symbols, as in the claims of the present invention.

Instead, Ling discloses an attempt to scale a log-likelihood ratio by carrying out a complete estimation of signal-to-noise ratios along with other parameters. Said another way, the claims of the present invention are based upon the realization by the present inventors that a log-likelihood ratio can be scaled using a far more ingenious method than that disclosed or suggested by Ling or any other remaining reference; by using the noise variance of pilot symbols only, or by using the noise variance of the pilot symbols and the noise variance of data symbols. Because the present invention makes use of one or both noise variances, estimations required by the present invention are far simpler and easier to carry out than the estimations required by Ling. It is Ling's failure to realize that the log-likelihood ratio could be scaled using one or both of the above-mentioned noise variances that is Ling's downfall.

Because simpler estimates may be made, one of the advantages provided by the present invention is that fewer errors occur as compared to Ling where it can be expected that a greater number of errors will occur because of the significantly higher number of estimates which Ling needs to complete in order to scale a log-likelihood ratio.

To the Examiner's credit, the Examiner appears to recognize this because in the Office Action the Examiner appears to indicate that Ling is silent on the use of the noise variance of received pilot symbols (see for example, page 4 of the Office Action).

Having put this feature in the independent claims, the Applicants respectfully submit that all of the present claims are patentable over Ling.

In addition, the claims of the present invention are also patentable over Ling in combination with any of the other references because none of the remaining references overcomes the deficiencies of Ling, namely none discloses or suggests the use of a noise variance of pilot symbols or the use of a noise variance of pilot symbols and a noise variance of data symbols as an index or as a value to select a scale factor for a look-up table to scale a log-likelihood ratio, as in the claims of the present invention.

Such a combination does not render obvious the claims of the present invention and is improper for at least the following reasons. Holtzman has nothing at all to do with the determination of a scaling factor for a log-likelihood ratio, as in the claims of the present invention. Instead, Holtzman is aimed at a better way to estimate signal-to-noise ratios. It is respectfully submitted that the claims of the present invention would not have been obvious to one of ordinary skill in the art at the time the present application was filed upon reading the disclosures of Ling and Holtzman because neither disclosure comes close to disclosing or suggesting that a log-likelihood ratio can be scaled by using only the noise variance of pilot symbols or a noise variance of pilot symbols and a noise variance of data symbols, as in the claims of the present invention.

A. **Comments Regarding Claims 3, 5, 15, 21 and 27**

In addition to the above rationales, claims 3, 5, 15 and 21 are additionally patentable over Ling, taken separately or in combination with any of the remaining references, because neither Ling nor any of the remaining references discloses or suggests a scale factor which is determined independently of the relative strengths and number of multipaths of a received wireless signal, as in claims 3, 5, 15, 21 and 27.

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Said another way, these claims provide for the estimation of the noise variance of the pilot symbols for an entire wireless signal, instead of on a per-path or per-channel basis.

In contrast, Ling discloses that its estimates must be carried out on a per-channel basis and cannot be carried out based on an estimate of the entire wireless signal. For example, Ling at page 10, lines 55-56, discloses the use of a "channel estimate SIR". As is known by those of ordinary skill in the art, channel estimates must be carried out on a per-path basis and cannot be carried out taking the entire wireless signal. Contrary to the Ling citations contained in the Office Action, this citation in Ling is the most pertinent citation and clearly indicates that Ling's estimates must be carried out on a per-path or channel basis. The estimates cannot be carried out "independently of relative strengths and number of multipaths in the received wireless signal," as in claims 3, 5, 15, 21 and 27 of the present invention. The reference to Ling in the Office Action (i.e., column 4, lines 37-67) is merely a general equation of a log-likelihood ratio scaling factor.

Accordingly, Applicants respectfully request entry of the amendments because these amendments place the claims in condition for allowance and do not require any additional search by the Examiner.
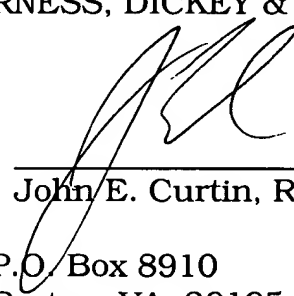
Applicants respectfully submit that these claims are allowable over the references cited by the Examiner, and, therefore, request withdrawal of the pending rejections and allowance of claims 1, 3-6, 9-11, 15-17, 21, 23, 24, 27, 28 and 30-33.

In the event that any matters remain at issue in the application, the Examiner is invited to contact the undersigned at (703) 668-8000 in the Northern Virginia area, for the purpose of a telephonic interview.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY & PIERCE, P.L.C.

By: _____
John E. Curtin, Reg. No. 37,602

P.O. Box 8910
Reston, VA 20195
(703) 668-8000

JEC:psy